Cost As an Independent Variable (System Level)

Cost As an Independent Variable (System Level)

- **Cost As an Independent Variable (CAIV)**
  - CAIV is a process that helps arrive at cost objectives (including Life Cycle Cost) and helps the requirements community set performance objectives
  - The Cost/Performance IPT, established by the Overarching IPT, identifies and facilitates appropriate cost performance trades and assists in establishing program cost objectives
  - The Defense Acquisition Executive approves CAIV objectives at Milestone I, II, and III

Cost As an Independent Variable

- **Concept and Process of CAIV**
  - **The concept of CAIV means that once system performance and objective cost are decided, the acquisition process will make cost more of a constraint, and less of a variable, while still obtaining the needed military capability**
  - **The process of achieving CAIV objectives includes:**
    - Setting realistic but aggressive **cost objectives** early in each acquisition program
    - Devising appropriate **metrics** for tracking progress in setting and achieving cost objectives
    - **Managing risks** to achieve cost, schedule, and performance objectives

Cost As an Independent Variable

Cost Objectives

- **Upon approval of a Mission Needs Statement, a CAIV strategy shall be formulated as part of the acquisition strategy to set cost objectives**
- **By Milestone I, each ACAT I and IA PM shall have established LCC objectives for the program through consideration of:**
  - Out-year resources and recent unit costs
  - **Parametric estimates** and technology trends
  - Mission effectiveness analysis and trades
  - Accident attrition rate studies
  - Other relevant considerations, e.g. commercial specifications, and **open systems strategy** and design

Cost As an Independent Variable

Metrics

- **Program Objectives and Thresholds**
  - Every acquisition program shall establish program goals for the minimum number of cost, schedule, and performance parameters that describe the program.
  - Each parameter shall include an objective and threshold value.
  - Cost, schedule, and performance objectives are developed through the CAIV process.
  - The threshold value is the minimum acceptable value that, in the user's judgment, is necessary to satisfy the need.
  - The objective value is that desired by the user and which the PM is attempting to obtain.

Cost As an Independent Variable *Metrics* (continued)

- **Program Objectives and Thresholds (continued)**
  - If no objective value is specified, the threshold value shall become the objective value
  - If no threshold values are specified:
    - Threshold value for performance shall be the objective value
    - Threshold value for schedule shall be the objective value plus six months for ACAT I (three months for ACAT IA)
    - Threshold value for cost shall be the objective value +10%

Cost As an Independent Variable

Managing Risks

- **Cost, Schedule, and Performance Risk Management**
  - PM shall establish a risk management program to identify and control performance, cost, and schedule risks. Program shall:
    - Identify and track risk drivers
    - Define risk abatement plans
    - Provide for continuous risk assessment through each acquisition phase to determine how risks have changed
    - Identify design requirements where performance increase is small relative to cost, schedule, and performance risk
  - Risk reduction measures shall be included in performance tradeoffs

Cost As an Independent Variable and Design-to-Cost (DTC)

- **CAIV and DTC**
  - Have the same goal of a proper balance among RTD&E, production, and operations and support costs, while meeting mission needs
    - In the past, DTC emphasized cost effective designs (minimizing cost while achieving performance) and targeting average unit cost
    - CAIV refocused DTC to consider LCC and perform tradeoffs to stay within cost objectives and constraints
  - Now, DTC activities are those which are undertaken to meet LCC cost objectives through explicit design activities

Cost As an Independent Variable
SBIRS PROGRAM

- Noun: SBIRS Low Component Program Definition Studies
- Contract Type: J - Firm Fixed Price
- Descriptive Data: The contractor shall demonstrate and validate critical design issues, including **risk reduction**, by conducting **Cost As an Independent Variable (CAIV) trades**, developing draft low component system description documents, and maturing the system design to the System Requirements Review (SRR) level.

Cost As an Independent Variable (System Level)

- **DCMC Engineering Role**
  - Understand your program and its cost, schedule, and technical risks
  - Be aware of current cost, schedule, and technical performance; monitor the EVMS control accounts
  - Be aware of any cost, schedule, and technical trade-offs being considered; participate in tradeoff discussions/decisions through your IPTs